REMARKS

Applicant requests reconsideration and allowance based upon the foregoing amendments and following remarks. Claims 1-48 are pending with claims 1, 12, 23, 33 and 43 being independent. No claims have been amended.

§ 103 rejections

Claims 1, 2, 4, 7-13, 15, 18-24, 26, 29, 31-38, 40 and 43-48 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,491,631 to Shirane et al. (hereinafter "Shirane") in view of U.S. Patent No. 6,370,454 to Moore (hereinafter "Moore"). Applicant respectfully traverses these rejections and, for the following reasons, requests that the Office withdraw these rejections.

Shirane describes a "Fault diagnostic system for vehicles using identification and program codes". *Shirane, Title.* A memory stores a vehicle identifier code which enables identification of a vehicle carrying the same type of electronic control unit (ECU) correspondingly to an ECU identification code (ECU-ID) and display means for displaying the vehicle identifier code is displayed on the basis of the ECU-ID provided by an ECU, and a predetermined fault diagnostic program corresponding to the vehicle identifier code is selected and initiated in response to the input of a verification signal of the displayed vehicle identifier code. When a plurality of faulty parts of a vehicle are detected, a priority table is referred to and fault codes corresponding to the plurality of faulty parts are displayed with priority. *Shirane, Abstract.*

Moore describes "a method and apparatus for the maintenance of mechanized equipment such as an automobile is disclosed. Various sensors

located within the automobile provide information to an on-board computing device, a personal digital assistant, or a local computing device which are networkable to a network such as the Internet. The information may be transferred across the network, and service obtained appropriately. Information located in various remote servers relating to the performance and service of the vehicle may be downloaded across the network and easily used in servicing and maintaining the vehicle. Optionally, the apparatus includes a notification system, such as an email system, for notifying of, scheduling, and/or paying for services." *Moore. Abstract.*

As the Examiner is no doubt aware, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); MPEP *§ 2142*. Applicant submits that (1) the proposed combination of references fails to teach or suggest all the features of the Applicant's claimed invention, and (2) motivation for the proposed combination is lacking.

For the sake of brevity, arguments will first be made with reference to claim 1 followed by brief discussion of the applicability of those arguments with respect to the other claims of the application.

(1) The combination of Shirane and Moore fails to teach or suggest all the recited features of the applicant's claims. For example:

Claim 1 recites a method comprising:

- collecting, on a computer maintained within a vehicle, data from a plurality of systems of the vehicle, wherein the plurality of systems:
    - include a diagnostics system providing one or more diagnostic codes; and
    - each is connected to the computer by a respective interface; and
- generating, on the computer, an explanation of a vehicle condition based on at least one said vehicle diagnostics code comprising a set of symbols, wherein the explanation combines data collected from the diagnostic system with data collected from at least one other said system .

Examiner on p. 2 of the Office Action correctly concludes that "Shirane does not teach that the computer is maintained on the vehicle, or combining data collected from the vehicle with diagnostics data" as recited in claim 1. The Examiner relies upon Moore for these recited features.

However, Applicant does not believe Moore provides a basis for combining data from systems and certainly not for generating an explanation that combines data from a diagnostic system and other systems of the vehicle. Moore does describe collecting sensor data from vehicle systems. Moore describes these sensors as including "pressure sensors, temperature sensors, viscosity sensors, flow sensors, chemical sensors such as oxygen, CO.sub.2, CO, NO, NO.sub.2, uncombusted hydrocarbons, sulfur and other sensors which detect various chemical substances." *Moore, col. 4, lines 52-57.* Moore does not mention a diagnostic system or collecting of diagnostic codes from a diagnostic system at all. Even if Moore provides a basis for combining data from the various sensors of different systems, it still fails to teach or suggest combining sensor data with diagnostic data. Further, Moore fails to describe generating an explanation based on the combined data. Thus, Shirane and Moore, alone or in combination, fail to

teach or suggest an explanation based on diagnostic code that combines data from the diagnostic system with data from one or more other vehicle systems. The combination simply fails to teach these aspects of claim 1.

Applicant acknowledges that Moore describes collecting sensor data from a variety of vehicle systems. However, it is not clear from Moore that the sensor data from different systems is combined. The Examiner referring to column 7 proposes that "Moore teaches the benefit of associating data collected on the various systems with diagnostic data for purpose of assisting in repair of the vehicle". Respectfully, applicant does not find such a statement in column 7 and it is unclear what in particular the Examiner is relying upon for the asserted proposition. In fact, column 7 does describe:

> In a preferred embodiment of the invention, each sensor is included in a group of sensors which give information relating to a single onboard system of the equipment or vehicle. This group of sensors may be an electronic grouping, not necessarily a physical grouping, thus allowing sensors which help diagnose one system also to serve double duty when querying another, related system.
>
> For example, if the tailpipe sensor is detecting an overheated tailpipe or an excess of uncombusted hydrocarbon emissions, the control software may poll the ignition module to make sure each spark plug is firing, and check the timing thereof. If the vehicle stalls, the software can query the fuel line sensor or access historical data relating to the fuel flow sensor to see if the flow of fuel has been interrupted, or if the engine oil pressure has been low recently. *Moore col. 7, lines27-42.*

Thus, Moore describes each sensor in a group associated with "a single onboard system". Moore also describe using certain sensors to collect data from more that one system e.g. "to serve double duty". Further, the control software

may collect data from another system in response to data from a sensor of a first system, e.g. collect ignition data if tailpipe is overheated. What Moore fails to describe is that the data from separate systems is combined or that a vehicle condition or diagnostic code explanation is generated which combines data from multiple systems. More particularly, there is no basis in Moore for an explanation which combines data from vehicle systems with diagnostic data from a diagnostic system. Moore is silent on this aspect of the present claims. There is nothing in column 7 or elsewhere in Moore that describes "generating . . . an explanation of a vehicle condition based on at least one said vehicle diagnostics code . . .**wherein the explanation combines data collected** from the diagnostic system with data collected from at least one other said system" as recited in claim 1. Even if the portion of Moore relied upon is construed as indicating that data from the sensors may be "associated" as the Examiner suggests "associating data" from systems is not equivalent to **generating an explanation of a vehicle code or vehicle condition** which combines data from a plurality of vehicle systems.

Assuming for the sake of argument only that Shirane describes an explanation based on a diagnostic code and that Moore describes associating sensor data from numerous systems, the combination of Shirane and Moore does not provide a basis for **an explanation of a vehicle code or condition based on combined data**. Neither Moore nor Shirane describes an explanation of a vehicle condition generated from combined data. Thus, the combination fails to teach or suggest all the recited features of claim 1. Accordingly, claim 1 is allowable over Shirane and Moore, alone or in combination, and withdrawal of the §103 rejection is respectfully requested.

(2.) In addition, the combination of Shirane and Moore lacks proper motivation to combine. As the Examiner is likely aware, motivation to combine is lacking where a modification proposed by the Office renders the reference unsatisfactory for its intended purpose. Further, motivation to combine is lacking if the modification proposed by the Office changes a principle of operation of a reference. *See, MPEP §2143.01.*

As noted in the prior response, Shirane is directed to a fault system external to a vehicle, and operable with many different vehicles. Accordingly, Shirane may not be combined to produce a vehicle based fault diagnostic system. Such a system is contrary to the teachings of Shirane and would render Shirane unfit for its intended purpose and/or alter the principle of operation of Shirane.

As previously noted, the Examiner on page 2 of the Office Action correctly concludes that "Shirane does not teach that the computer is maintained on the vehicle". Applicant agrees and submits that Shirane is limited by its disclosure to a fault diagnostic system which is portable and/or external to the vehicle. For instance, Shirane describes an ECU component (*Ref No. 1 in FIG.* 2) having an ECU-ID and a vehicle identification number (VIN). A separate fault diagnostic system (*Ref. No. 2 in FIG. 2*) is used to retrieve fault data from the ECU. The ECU-ID or VIN number is used by the diagnostic system to select from among many diagnostic programs, e.g. programs corresponding to different VINs and vehicles. Applicant understands this to mean the ECU is within a specific vehicle and **that the fault diagnostics system is separate from the vehicle and is designed used with many vehicles**. The following excerpted portion of Shirane further illustrates that the diagnostic system is not maintained within a vehicle, rather is directed to a device for use with many vehicles:

> The signal taken in from ECU 1 through cable 5 and the signal obtained at test probe 6 are processed on the program and/or control data stored in ROM 21 and RAM 22, and the processing result or fault diagnostic result is output to display device 27. **To provide for optimal fault diagnosis for many types of vehicles, a plurality of fault diagnostic programs are previously prepared and registered in ROM 21**. *Shirane col. 8, lines 36-44.*

More directly, Shirane states that the fault diagnostic system is designed so as to be a portable device:

> Preferably fault diagnostic system 2 contains a power supply battery **so as to be portable**, and the battery is preferably rechargeable as a NiCd battery or the like so that **the power can be supplied even from the battery of a car through the socket of a lighter.** *Shirane col. 8, lines 36-44.*

Applicant further points out that the method described in Shirane operates based upon identification of a particular vehicle using a VIN number or ECU-ID of the particular vehicle. Indeed the manner in which Shirane operates is to accept user input or selection of the VIN number corresponding to a vehicle, so as to choose the correct program from among programs for many vehicles from the diagnostic system. A VIN identification, the plurality of programs associated with different vehicles, and the portability of the system, are clear teachings from Shirane that are consistent with a portable diagnostic system which is not maintained within a vehicle, and which is designed to be used with many different vehicles. For example, a portable unit designed to be used, such as by a mechanic, with many vehicles, such as the vehicles of numerous customers. These aspects

described in Shirane are inconsistent with a vehicle based system. For instance, a fault diagnostic system which is vehicle based (maintained in a vehicle) would not reference a ECU-ID or VIN number to identify the vehicle and/or to select from among many programs as in Shirane, because it is already associated with a single vehicle.

Accordingly, Shirane may not be combined with Moore (or any other reference) to produce the vehicle based system as presently recited in the Applicant's claims. Shirane describes a system which in form and operation is external to a vehicle. A combination, such as the proposed combination of Shirane and Moore, which places the diagnostics system such that it is maintained within a vehicle would render Shirane unfit for its stated and intended purpose, e.g., a portable diagnostic system used with many vehicles. Further, such a combination would change the principle of operation of Shirane. In particular, Shirane describes that the VIN number and ECU-ID are used to identify a vehicle, and select from among many programs based on identification (e.g., select from among many vehicle). However, these operating principles which are essential to the invention described in Shirane are rendered useless if the system is maintained in a particular vehicle.

Accordingly, claim 1 is allowable over the proposed combination of Shirane and Moore for this additional reason and withdrawal of the §103 rejection is respectfully requested.

Claims 2-11 depend directly or indirectly from claim 1 and are allowable at least based upon this dependency as well as for their own recited features which the references of record do not teach or suggest.

Claim 12 recites a computer-readable medium having stored thereon a computer program having executable instructions for performing a process comprising:

- collecting, on a computer maintained within a vehicle, data from a plurality of systems of the vehicle; wherein the plurality of systems includes:
    - a diagnostics system providing one or more diagnostic codes; and
    - a global positioning satellite (GPS) system providing vehicle location data; and
- generating a deciphered explanation of at least one said vehicle diagnostics code wherein the explanation combines data collected from the diagnostic system with vehicle location data collected from the GPS system.

The proposed combination of Shirane and Moore fails to disclose the features of claim 12 for reasons discussed with respect to claim 1. For example the combination fails to disclose "generating a deciphered explanation of at least one said vehicle diagnostics code wherein the explanation combines data collected from the diagnostic system with vehicle location data collected from the GPS system". The proposed combination of references fails to teach or suggest an explanation based on combined data.

Further, Shirane is silent on "a global positioning satellite (GPS) system". While Moore discloses vehicle system which may include a GPS system, Moore fails to describe that the GPS data is combined with diagnostic data to generate an explanation. Thus, the combination fails to teach or suggest "wherein the explanation includes data collected by the computer from the vehicle diagnostic system and the GPS" as recited in claim 12. Shirane and Moore, alone or in combination, fail to teach or suggest these recited features of claim 12. Accordingly, claim 12 is not obvious over Shirane in view of Moore, and withdrawal of the §103 rejection is requested.

Still further, the combination of Shirane and Moore lacks motivation for reasons described with respect to claim 1, and withdrawal of the §103 rejection of claim 12 is requested for this additional reason.

Claims 13-22 depend directly or indirectly from claim 12 and are allowable at least based upon this dependency as well as for their own recited features which the references of record do not teach or suggest.

Claim 23 recites a vehicle comprising:

- a vehicle diagnostic system;
- one or more other vehicle systems; and
- a computer communicatively coupled to the vehicle diagnostic system and the one or more other systems via respective interfaces, wherein the computer is configured to:
    - collect data from a plurality of said vehicle systems; and
    - generate a deciphered explanation of a vehicle diagnostics code.

The proposed combination of Shirane and Moore fails to disclose the features of claim 23 for reasons discussed with respect to claim 1. For example the combination fails to disclose "a vehicle comprising a computer wherein the computer is configured to: collect data from a plurality of said vehicle systems; and generate a deciphered explanation of a vehicle diagnostics code." The proposed combination of references fails to teach or suggest the deciphered explanation of a vehicle diagnostics code as recited in claim 23. Accordingly, claim 23 is not obvious over Shirane in view of Moore, and withdrawal of the §103 rejection is requested.

Further, the combination of Shirane and Moore lacks motivation for reasons described with respect to claim 1, and withdrawal of the §103 rejection of claim 23 is requested for this additional reason.

Claims 24-32 depend directly or indirectly from claim 23 and are allowable at least based upon this dependency as well as for their own recited features which the references of record do not teach or suggest.

Claim 33 recites a vehicle-based system comprising:

- a diagnostics receiver module receiving a vehicle diagnostics code from a vehicle diagnostics system, the vehicle diagnostics code including a set of one or more symbols and corresponding to a vehicle condition;
- one or more interfaces corresponding to one or more other vehicle systems and configured to receive vehicle systems data from a respective vehicle system; and
- means for generating an explanation of the vehicle condition based on the vehicle diagnostics code, wherein the explanation combines data from the vehicle diagnostics system and at least one said other vehicle system.

The proposed combination of Shirane and Moore fails to disclose the features of claim 33 for reasons discussed with respect to claim 1. For example the combination fails to disclose "generating an explanation of the vehicle condition based on the vehicle diagnostics code, wherein the explanation combines data from the vehicle diagnostics system and at least one said other vehicle system". The proposed combination of references fails to teach or suggest an explanation based on combined data. Accordingly, claim 33 is not obvious over Shirane in view of Moore, and withdrawal of the §103 rejection is requested.

Further, the combination of Shirane and Moore lacks motivation for reasons described with respect to claim 1, and withdrawal of the §103 rejection of claim 33 is requested for this additional reason.

Claims 34-42 depend directly or indirectly from claim 33 and are allowable at least based upon this dependency as well as for their own recited features which the references of record do not teach or suggest.

Claim 43 recites a method comprising:

- receiving, on a vehicle based computer, a vehicle diagnostics code from a vehicle diagnostics system, the vehicle diagnostics code including a set of one or more symbols and corresponding to a vehicle condition;
- receiving vehicle systems data from one or more other vehicle systems; and
- retrieving an explanation of the vehicle condition based on the vehicle diagnostics code; wherein the explanation combines data from the vehicle diagnostics system and at least one said other vehicle system.

The proposed combination of Shirane and Moore fails to disclose the features of claim 43 for reasons discussed with respect to claim 1. For example the combination fails to disclose "explanation of the vehicle condition based on the vehicle diagnostics code; wherein the explanation combines data from the vehicle diagnostics system and at least one said other vehicle system". The proposed combination of references fails to teach or suggest an explanation based on combined data. Accordingly, claim 43 is not obvious over Shirane in view of Moore, and withdrawal of the §103 rejection is requested.

Further, the combination of Shirane and Moore lacks motivation for reasons described with respect to claim 1, and withdrawal of the §103 rejection of claim 43 is requested for this additional reason.

Claims 44-48 depend directly or indirectly from claim 43 and are allowable at least based upon this dependency as well as for their own recited features which the references of record do not teach or suggest.

For at least the foregoing reasons, claims 1-48 are not obvious over Shirane in view of Moore, and withdrawal of the §103 rejections of these claims is respectfully requested.

§ 103 rejections

Claims 3, 14, 25 and 41 are rejected 35 U.S.C. §103(a) as being unpatentable over Shirane in view of U.S. Patent No. 6,212,449 to Wellman et al. (hereinafter "Wellman").

Wellman describes a "diagnosis system for materials handling vehicles leads service personnel step-by-step through diagnosis and repair of faults within the vehicle. Faults are assigned corresponding event codes so that when a fault is detected, its corresponding event code is displayed . . . The event code is used to access diagnosis information identifying the portion of the vehicle wherein the malfunction has occurred, the components which caused the malfunction and, preferably, provides a pictogram of that portion of the vehicle. *Wellman, Abstract*

However, Wellman fails to correct the defects in the combination of Shirane and Moore previously discussed with respect to claims 1, 12, 23, 33 and 43. For example, Wellman fails to teach or suggest "collecting, on a computer maintained within a vehicle, data from a plurality of systems of the vehicle" or "wherein the explanation combines data collected from the diagnostic system with data collected from at least one other system" as recited in claim 1. Claims 3, 14, 25 and 41 depend respectively from one of independent claims 1, 12, 23, 33 and 43 and are allowable at least based on this dependency. Thus, Applicant respectfully requests withdrawal of the §103 rejection of these claims.

Claims 30 and 39 are rejected 35 U.S.C. §103(a) as being unpatentable over Shirane in view of U.S. Patent No. 6,2789,19 to Hwang et al. (hereinafter "Hwang").

Hwang describes an "apparatus for diagnosing and indicating operational failure in automobiles includes a diagnostic circuit for receiving signals input through wiring at both ends of each fuse and wiring of a relay in a fuse box or junction box installed in an automobile and diagnosing operation failure by detecting a change in the logic value of the input signal, and an output device for receiving the result of diagnosis from the diagnostic circuit and outputting signals indicating the location of a defective fuse or relay. *Hwang, Abstract.*

However, Hwang fails to correct the defects in the combination of Shirane and Moore previously discussed with respect to claims 1, 12, 23, 33 and 43. For example, Hwang fails to teach or suggest an explanation "wherein the explanation combines data collected from the diagnostic system with vehicle systems vehicle location data collected from the GPS system" as recited in claim12, or "wherein the explanation combines data from the vehicle diagnostics system and at least one said other vehicle system as recited in claim 33. Claims 30 and 39 depend respectively from one of independent claims 1, 12, 23, 33 and 43 and are allowable at least based on this dependency. Thus, Applicant respectfully requests withdrawal of the §103 rejection of these claims.

Conclusion

For at least the foregoing reasons claims 1-48 are allowable and furtherance to issuance is respectfully requested.

Respectfully Submitted,

Dated: 6/19/06

By: _____

Daniel T. McGinnity
Reg. No. 55444
(509) 324-9256